



*Demand Picture and Australia's Contribution*, Proc. Third Int. Ferroalloys Conf. Athens, Greece, 1981; Hargrave, *The changing face of the vanadium market*, Pre-print, Eighth Int. Ferro-alloys Conf., Monte Carlo, November, 1991 and Bohunovsky (op. cit.). The development of vanadium trade is also discussed by Kraus: *Vanadium - Verbrauch und Verflugbarkeit*, Stahl u. Eisen 109 (1989) Nr. 11, pp 547 - 552.

21. According to Brandeis (see above) this was started by the failure to comply with orders by a Japanese producer. This was confirmed by an article in *Metal Bulletin* June 6 1991, p7.

22. One of the original classifications of strategic metals was carried out by DeMille in *Strategic Minerals - A Summary of Uses, World Output, Stockpiles, Procurement*, McGraw-Hill, London and New York, 1947.

23. Developed countries are here defined as OECD plus South African Republic; the centrally planned countries were (at the time of the statistics): the former USSR, former Comecon including East Germany, Peoples Republic of China, North Korea, North Vietnam, Albania, Mongolia, Cuba; developing countries are countries not included in the other two categories. Source of definition and figures: *Minerals Handbook* (op. cit.).

24. see Wang and Kuang Di (op. cit.).

25. see Ariovich: Strategic Importance of SA Minerals (South African) *Chamber of Mines Newsletter*, March 1984 and Owen: The Role of South Africa as a Supplier of Strategic Minerals, *Raw Materials Report*, Vol. 4, No 4 1986.

26. see Bolton: The Illusion of Dependence: South African minerals in the global economy, *Raw Materials Report*, Vol. 2, No. 3, 1983.

27. See e.g. *Metal Bulletin* Oct 10 1991, p11 and the Highveld withdrawal of price publishing in 1993.

28. See Hargrave (op. cit.) and *Metal Bulletin* Dec. 2 1991, p 13. ■

## Western world vanadium industry: Ownership and control 1992

by Andreas Tegen

**The table on the following page is an excerpt from Raw Materials Data, the database on ownership and production in the world's mineral industries. Raw Materials Data is compiled by the Raw Materials Group and is the only database of its kind covering more than 7 000 mining, refining and exploration companies active in more than 30 minerals. Readers of Raw Materials Report will regularly get exclusive excerpts from Raw Materials Data.**

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The table on the following page shows the controlling companies in vanadium ranked by size of controlled production.

The controlling companies have the ability to act decisively on strategically important issues. Such issues include the broad policies of a company, decisions on large investments, buying or selling of subsidiaries and power to appoint or dismiss management. To be in control of a company does not necessarily include having a day-to-day influence over all its decisions. It is not always easy to define control exactly and it can also be a bit difficult to measure it accurately.

A company can be controlled through many means, of which ownership is the most common and important one. However, control can also be exercised through administrative and technical management, vertical integration, interlocking directorates, long term contracts, financing arrangements and proprietary technologies. In the table on this page, ownership and management are used when determining who is in control of a specific company.

The table does not include the state owned producers in the former USSR and China and it does not include vanadium produced from oils, spent catalysts etc.

Since no production statistics are released, all figures are estimates based on company statements on capacity changes etc in combination with national production figures.

Anglo American Corporation of South Africa (AAC), in turn controlled by the Oppenheimer family, is the undisputed leader of the league. AAC is one of the largest minerals companies in the world with a wide range of minerals and metals on its production list. AAC is active in all parts of the world, although its focus is still in South Africa. It is a leading controlling company in the production of gold, platinum group metals, diamonds,

antimony, and chromite. It is also an important producer of copper, nickel, cobalt and a range of other minerals.

MIM Holdings and Metall Mining are world-class producers of base metals.

Metall Mining was until recently controlled by the German Metallgesellschaft. Union Carbide was until recently an important producer of chromite and ferrochrome in Zimbabwe.

Please note that the production of a few US companies, namely Umetco, Monsanto and Simplot is unknown, and not included in the table. The produced amounts are probably rather small. ■

**Table 1. Corporate control in western world vanadium mining in 1992**

Controlling company/state (per cent control)	Country of incorp. or production	Producers's total prod. kt	Controlled share kt	Share of total world prod per cent
<b>1. Anglo American Corp of SA</b> 100 % Highveld Steel & Vanadium Corp.	<b>South Africa</b> South Africa	– 8.0e	<b>8.0e</b> 24.1e	<b>24.1</b>
<b>2. Strategic Minerals Corp</b> 100% Vametco Minerals Corp	<b>USA</b> South Africa	– 3.0e	<b>3.0e</b> 3.0e	<b>9.0</b> 9.0
<b>3. New Zealand Steel Mining Ltd</b>	<b>New Zealand</b>	–	<b>1.7</b>	<b>5.1</b>
<b>4. Union Carbide Corp.</b> 70% White Mesa Mill, Blanding	<b>USA</b> USA	– 1.0e	<b>0.7e</b> 0.7e	<b>2.1</b> 2.1
<b>5. MIM Holdings Ltd</b> 35% Transvaal Alloys (Pty) Ltd	<b>Australia</b> South Africa	– 2.0e	<b>0.7e</b> 0.7e	<b>2.1</b> 2.1
<b>6. Metall Mining Inc</b> 35% Transvaal Alloys (Pty) Ltd	<b>Canada</b> South Africa	– 2.0e	<b>0.7e</b> 0.7e	<b>2.1</b> 2.1
<b>7. Degussa AG</b> 30% Transvaal Alloys (Pty) Ltd	<b>Germany</b> South Africa	– 2.0e	<b>0.6e</b> 0.6e	<b>1.8</b> 1.8
<b>8. Vantech AG</b> 50% Vanadium Technology (Pty) Ltd	<b>Liechtenstein</b> South Africa	– 1.0e	<b>0.5e</b> 0.5e	<b>1.5</b> 1.5
<b>9. Kiln AG</b> 50% Vanadium Technology (Pty) Ltd	<b>Switzerland</b> South Africa	– 1.0e	<b>0.5e</b> 0.5e	<b>1.5</b> 1.5
<b>10. Energy Fuels Nuclear Inc</b> 30% White Mesa Mill, Blandning	<b>USA</b> USA	– 1.0e	<b>0.3e</b> 0.3e	<b>0.9</b> 0.9
<b>Total, 10 largest</b>			<b>16.7</b>	<b>50.3</b>
<b>Total, Western world</b>			<b>22.1</b>	<b>100.0</b>
<b>Total, world</b>			<b>33.2</b>	<b>..</b>

Note: e estimate.